means through which rehabilitation measures may be instituted, publicity in regard to such disabilities may have really served a good purpose.

For further comment on these matters, readers are referred to other articles in this issue.*

C. M. A. POSTGRADUATE ACTIVITIES

Responsibilities of County Societies in After-Graduation Courses.—In common with other state medical societies, the California Medical Association has endeavored to create increased interest in postgraduate courses, and the California Medical Association Committee on Postgraduate Activities has repeatedly sought the coöperation of component county societies in efforts to promote the institution of such after-graduation or refresher studies. An analysis of the results of the last few years shows that once a successful course has been put on, physicians of such a community or district are usually anxious to have similar presentations in succeeding months or years. Progress, therefore, has been made in providing an increasing opportunity for after-graduation work but not to an extent altogether gratifying to the California Medical Association Postgraduate Committee.

It must be conceded that every component county medical society has an obligation to its members, especially to those in general practice, to bring to them practical, helpful courses, at a minimum loss of time and expense to the physicians who take part. It is here, therefore, that the California Medical Association committee desires to be of service. However, to do its part in providing speakers, and in giving publicity and other aid, it must have, in each county, an active postgraduate committee, whose members, and especially whose chairman, may be relied upon to successfully make and carry through all necessary local arrangements.

* * *

An Active Local Committee of First Importance.—Component county societies will again be approached the coming months with requests to appoint the needed committees, preferably with a staggering membership; for example, a committee of three members, one of whose terms would expire each year. In that way, the continuity of after-graduation courses could best be maintained from year to year. Once an efficient local committee is created, even if it be essentially a one-man committee, it may be wise to make no change. In some of the southern counties, where the work has been successfully carried on, this procedure is in vogue, and supervision has remained for several years with the same physicians.

At a recent meeting of the California Medical Association Committee on Postgraduate Activities, plans for a broad program for 1941-1942 were outlined. The four medical schools, the state and other health departments, county and private hospitals, and medical libraries are among the agencies whose coöperation will be solicited.

The one special and immediate need, however, as already stated, is the appointment of an active county society committee on postgraduate work. The central California Medical Association committee will then be in position to promote the attractive plans it has in mind. Practical courses on up-to-date medicine, to be made available to all physicians in both urban and rural districts, are what the state committee hopes to provide. All physicians interested should urge their county society officers to give serious thought to these matters; for an alert public desires the best to be had from scientific medicine.

Other State Association and Component County Society News.—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 95.

EDITORIAL COMMENT†

SHOULD RHEUMATIC HEART DISEASE BE REPORTABLE?*

I

Rheumatic heart disease today accounts for 90 per cent of the heart disease among people under thirty, and the death rate is rising. There is a sound medical basis for believing the disease will require the same type of control as that which has steadily reduced the death rate of tuberculosis.

There is evidence that rheumatic infection is transmitted from person to person. The incidence of multiple cases in families equals that of tuberculosis. There have been epidemics reported in schools, colleges, military organizations; waves of rheumatic activity in cardiac hospitals are not infrequent.

The higher incidence of the disease among the lower economic groups in large cities indicates that, as in tuberculosis, better housing, provision of proper food and clothing, adequate medical care and other measures promoting child welfare can be expected to reduce the death rate.

However, any comprehensive preventive program must wait on the accumulation of adequate statistical data. We must know more about where, how and when the rheumatic disease appears. Such information can be obtained only if the disease is made reportable.

Physicians should be encouraged to report rheumatic heart disease deaths according to etiology. The International List of Causes of Death should

* See pages 68, 70, 71, 74, 75, and 95.

† This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

* See also Letters Department, on page 109.

be revised to permit proper compilation of the reported mortality. School nurses and teachers should be trained to be on the alert for the more easily detectable evidences of rheumatic infection, and to report such cases to the school physician for future examination. As soon as the machinery for finding and reporting the disease is set in motion, the systematic preventive program can go into action.

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DELETERIOUS EFFECT OF LOCAL SERUM THERAPY

Evidence that the local application of specific immune serum may do more harm than good in certain virus diseases is one of the major surprises in recent studies of the anatomy, physiology and "metaplastic immunity" of experimental influenzal pneumonia in mice.

The concept of "metaplastic" or "selection regenerative" immunity was introduced about thirty years ago by Suzuki,[1] who deduced this theory from his studies of uranium nephritis in dogs. He found that, following sublethal uranium intoxication, regeneration of kidney epithelium took place and that the regenerated kidney is relatively resistant to uranium salts. This observation was afterward confirmed by Aschoff,[2] who pictured selective regeneration as a purposeful defensive mechanism presumably applicable to a wider variety of toxic agents. According to this concept, the more susceptible epithelial cells are killed and desquamated as a result of toxic injury, with regeneration taking place solely from the few residual uninjured and, presumably, naturally resistant cells. The theory is essentially an application of the Darwinian theory of "survival of the fittest" to histological units, and pictures adult immunity largely as a result of the toxic elimination of relatively unfit infantile tissue units.

This theory was afterward studied in detail by MacNider,[3] who was able to demonstrate two distinct regenerative processes in the canine kidney. If the convoluted tubules are not too seriously injured by uranium salts, a nonselective recovery takes place. This nonselective regeneration is not accompanied by an increase in uranium resistance. Following more serious toxic injury, however, the more susceptible epithelial cells are desquamated, and regeneration is affected solely by migrations or proliferations of the few relatively uninjured cells. Following such selective regeneration, the canine kidney will withstand at least twice the usual necrotizing dose of uranium salts.

That selective regeneration also takes place in the respiratory tract was afterward demonstrated by Straub,[4] of the Netherlands Institute for Cancer Research. He found that, following intranasal instillation of influenza virus, the infective agent shows a specific affinity for the bronchiolar epithelium. Thus electively localized the virus causes a primary catarrhal or desquamative bronchiolitis, with subsequent collapse of the pulmonary alveoli, presumably due to bronchiolar occlusion. Death is apparently due to this alveolar collapse, with resultant loss of pulmonary function. In sublethal infections, complete desquamation of the bronchilar epithelium may take place. Rapid mitoses and ingrowths of new or "metaplastic" epithelial cells may be demonstrable as early as the fourth day. Straub found that "even a very slight reepithelization gives complete immunity to subsequent influenza virus infection."

This general picture of "metaplastic" influenza immunity is currently confirmed by Taylor,[5] of the International Health Laboratories, who, however, describes the selective regeneration as an "hyperplasia," or a "conversion of columnar to stratified epithelium." As a practical application of the newer concepts, Taylor studied the cytological effects of certain therapeutic agents. He finds that in mice the maximum virus proliferation in the bronchiolar mucosa is effected within forty-eight hours after intranasal instillation, *i. e.,* before the appearance of demonstrable gross lesions. Virus proliferation is apparently inhibited at this time, with a subsequent rapid decrease in titer synchronous with onset of the regenerative process.

If, however, during this static phase of the infection the mice are given an intranasal instillation with nonisotonic salt solution, a fatal secondary proliferation of the virus takes place in practically 100 per cent of the animals. A similar exacerbation of the bronchiolitis with the development of a fatal influenzal pneumonia also follows intranasal instillation of 10 per cent normal serum. With control intranasal instillation of immune serum, however, the synergic effects are less marked, the number and severity of the pulmonary lesions being increased, but with no increase in the mortality. The most that can be said in favor of this type of immune serum therapy is that its deleterious effects are less than in control treatments with normal serum or with isotonic salt solution.

To explain his observed deleterious effects, Taylor assumes that intranasal instillation of irritating fluids tends to favor the escape of the virus from infected epithelial cells and facilitate its spread through the bronchial tree, with the resultant invasion of cells that would otherwise escape infection. This deleterious effect is apparently partly offset by the specific antibodies in immune serum, which presumably partially neutralize the escaped virus and thus prevents its subsequent invasion of new cells.

Taylor believes that there is an analogy between the lethal effects of intranasal instillation of irritating fluids in influenza mice and the usual picture of fatal influenzal pneumonia in man. In nearly all fatal human cases there is a superimposed bacterial infection, the secondary bacterial invaders usually being considered as the immediate causes

1 Suzuki, T.: "Nierensekretin," Fisher, Jena, 1912.
2 Aschoff, L.: "Lectures on Pathology," Hoeber, New York, 1924.
3 MacNider, W. de B.: Jour. Exp. Med., 49:411, 1929.
4 Straub, M.: Jour. Path. and Bact., 45:75, 1937; 50:31, 1940.
5 Taylor, R. M.: Jour. Exp. Med., 73:43 (Jan.), 1941.